



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

Attn: Peter M. Balkus
Station Director
Brayton Point Energy, LLC
1 Brayton Point Road
Somerset, Massachusetts 02725

Re: 310 CMR 7.00 Appendix B(7)
Transmittal # W255239
Proposed Approval of
BWP AQ 28 Application
Verification of GHG Credits
at Brayton Point Energy

December 4, 2013

Dear Mr. Balkus,

The Massachusetts Department of Environmental Protection (MassDEP or the Department) hereby approves an Application for Verification of GHG (Greenhouse Gas) Credits (BWP AQ 28), submitted by Dominion Energy Brayton Point, dated March 28, 2013.¹ In accordance with the requirements of 310 CMR 7.00: Appendix B(7)(f), the Department conducted a 30-day public comment period on the Proposed Approval. The comment period ended on October 25, 2013. MassDEP received substantive comments from two commenters, both opposed to the proposal. The issues raised by the commenters were considered in detail before the original certification application for the project was approved in 2009, as documented in the Response to Comments published at that time. Therefore, the Department has not revised the Response to Comments document, and is finalizing the approval as proposed.

The approval of your Application for Verification of GHG Credits (BWP AQ 28) creates 48,402 verified GHG Credits for emission reductions that occurred between January 1, 2011 and December 31, 2012 at Brayton Point Power Plant in Massachusetts. Please be aware that, while your application also documented reductions that occurred in 2009 and 2010, the Department is not creating GHG Credits corresponding to those reductions because your application did not meet the regulatory requirement to submit the application “within two calendar years after the end of the calendar year in which the emission reduction, avoided emission, or sequestered emission actually occurred” (310 CMR 7.00: Appendix B(7)(e)2.).

Verified GHG Credits from this project can be exchanged for CO₂ allowances (RGGI allowances) at a 2-1 discount in accordance with 310 CMR 7.00: Appendix B(7)(h), provided that an application is submitted before December 1, 2013. CO₂ allowances are currently held in the GHG Credit Exchange Set-aside account pursuant to 310 CMR 7.70(6)(d) for this purpose.

¹ Note that, due to a change of ownership, the GHG Credits will be awarded to Brayton Point Energy, LLC. The Department is making this change in response to a comment received from Dominion Energy Brayton Point.

As the final deadline for submittal of GHG Credit application was March 31, 2013, and no other applications were received by the Department in advance of that deadline (from this project or any other projects), no other GHG Credits will be eligible for exchange pursuant to 310 CMR 7.00: Appendix B(7)(h).

Included as part of this approval of your Application for Verification of GHG Credits are the following:

- (1) A description of the project.
- (2) A table showing the number of verified GHG Credits.
- (3) A list of relevant determinations that the Department has made in accordance with the requirements of 310 CMR 7.00: Appendix B(7).
- (4) An explanation of how the number of GHG Credits requested was calculated.

Note that your applications are also incorporated, by reference, into this approval.

(1) Description of the Project

The project processes coal ash for use in place of Portland cement in concrete manufacture. The number of GHG Credits is based on an estimate of the emissions that would have occurred if Portland cement were used instead of processed coal ash to manufacture concrete. The applicant has identified Headwaters Resources as an operator of the project, as Dominion's "exclusive ash marketer," and as the sole "direct purchaser" of fly ash from the project. As described in the application:

The ARP is a fluidized bed carbon burnout (CBO) combustion system that burns the carbon remaining in fly ash from the combustion of coal. The end product from the ARP is a Coal Combustion Product (CCP) that is a low carbon fly ash used as a replacement to Portland cement in the production of concrete.

Currently, approximately 95% of the ash from the ARP is transported by Headwaters' subcontractors to one of 30 concrete producer's plants. Each concrete producer has approximately 10 (mobile or stationary) plants. The remaining 5% of the ash is marketed by Headwaters to one of 15 stationary locations in the Pre-cast concrete market.

(2) Table showing the number of Certified and Verified GHG Credits.

Year	Total number Certified GHG Credits* (June 10, 2009 Final Conditional Approval)	Total number of Verified GHG Credits
2011	170,429	33,846
2012	170,429	14,556
Total		48,402

* Only verified GHG can be exchanged for CO2 allowances.

(3) A list of relevant determinations that the Department has made in accordance with the requirements of 310 CMR 7.00: Appendix B(7). (Defined terms and language that is directly excerpted from regulations appear in italics.)

The Department has made the following determinations:

- The emission reductions are *Real*, in that, when the coal ash was used in place of cement, emissions that would have occurred during the manufacture of cement did not occur.
- The emission reductions were *Additional*, in that there was no legal requirement to process coal ash for use as a replacement for Portland cement, or to use processed coal ash as a replacement for Portland cement.
- The emission reductions are *Verifiable*, in that the applicant provided documents showing the transfer of processed coal ash to Headwaters, an ash marketer with which the applicant has established a contractual relationship.
- The emission reductions are *Permanent*, in that once concrete was manufactured using coal ash, the same concrete will never be manufactured using Portland cement.
- The emission reductions are *Enforceable*, in that, pursuant to 310 CMR 7.00: Appendix B(7)(g)8., violations of the requirements of 310 CMR 7.00: Appendix B(7) may be enforced against any person who applied for certification or verification of GHG Credits.
- The project commenced *on or after January 1, 2006*, in accordance with 310 CMR 7.00: Appendix B(7)(d)9, in that the ash processing facility commenced operation in August of 2006.
- The application has specified *the best management practice used to determine an emissions baseline*, in accordance with 310 CMR 7.00 B(7)(e)4.b, in that the project achieves GHG emissions reductions beyond those that would be achieved if current best management practice was employed.

The Certification Application states:

We are aware of only three other CBO's [fluidized bed carbon burnout combustion systems] currently operating in the country for the express purpose of lowering carbon content in ash from an electric generating facility, so that the ash is then marketable to be beneficially used. Dominion also operates a CBO at its Chesapeake Power Station in Chesapeake, Virginia. In addition, ammoniated ash due to SCRs or SNCRs would normally need to be land filled, if not treated through the CBO so that it can be beneficially used. The only current solution to dealing with ammoniated ash contamination is to process this ash through the CBO, so that the ammonia thermally degrades to nitrogen and water.

The applicant provided the following additional information in support of this verification application:

This information [above] is correct regarding CBOs. However, the SEFA Group, has developed a thermal beneficiation technology called Staged Turbulent Air Reactor (STAR®). The STAR® process treats fly ash to lower the loss of ignition (LOI) for use as pozzolan in concrete. The STAR® process can also remove all the carbon in fly ash so that the purified mineral matter can be used as raw feed material in other products and processes that historically have been unable to use fly ash as raw feed material. There are currently 2 of these facilities in operation.

- The project does not present any potential project leakage.

(4) Explanation of how the number of GHG Credits for Verification was calculated

The number of GHG Credits was calculated using the following equation in accordance with MassDEP's June 10, 2009 Final Conditional Approval letter that created the certified GHG Credits:

$$\text{GHG Credits}_{(\text{total})} = \text{GHG Credits}_{(2011)} + \text{GHG Credits}_{(2012)}$$

$$\text{Where GHG Credits}_{(\text{year})} = N_{\text{baseline}} - N_{\text{project}}$$

Where $N_{\text{baseline}} - N_{\text{project}}$ = the total number of tons of CO_{2e} that would have been emitted without the project if best management practice had been followed.

$$N_{\text{baseline}} - N_{\text{project}} = (C \times E) - D$$

Where:

C = the net increase in the number of tons of ash used in place of Portland cement due to the project during the verification period, as compared to the baseline period, adjusted for any difference between the length of the certification period and the length of the verification period, calculated thus:

$$C = A - (51,796 \times T)$$

Where:

A = the number of tons of ash that were processed, transferred to Headwaters, and actually used in place of Portland cement in the manufacture of concrete during the verification period;

51,796 = the number of tons of ash processed for use in place of Portland cement during the baseline year.

T = the length of the verification period, in years;

E = An estimate of the number of tons of CO_{2e} emissions that are avoided when one ton of fly ash is used as a cement replacement. The Department is proposing to continue to use an emissions factor of 0.71 for emissions reductions covered by this verification application. This emissions factor was included in the Final Conditional Approval that created certified GHG Credits for this project, and the Department is not aware of any new information that would support the use of a different emissions factor for emission reductions that occurred in 2011 and 2012. Additional information about this emission factor is included in the Final

Conditional Approval and the Response to Comments that was published at the same time.

D = The estimated number of tons of CO_{2e} emissions reductions that would otherwise be eligible for GHG Credits from this project, but are not eligible because they have been, or will be, used to create offsets or other credits in any other voluntary or regulatory program anywhere in the world. Note: D = 0 for each year.

Data and calculations for the applications are summarized in the following table:

Verification Year	C	A	T (years)	Total Annual GHG Credits
2011	47,671	99,467	1	33,846
2012	20,502	72,298	1	14,556

$$\text{GHG Credits}_{(\text{total})} = \text{GHG Credits}_{(2011)} + \text{GHG Credits}_{(2012)}$$

$$\text{GHG Credits}_{(\text{total})} = 33,846 + 14,556$$

$$\text{GHG Credits}_{(\text{total})} = 48,402$$

Should you have any questions concerning this Final Approval, please contact William Space at william.space@state.ma.us or 617-292-5610.

Sincerely,

Christine Kirby
Director, Division of Air and Climate Programs